2D simulations of solar anemones

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Anemone active regions (also known as fountains) are known to exist in the solar atmosphere since the advent of space-based observations in the 1970s. Here we present a two-dimensional numerical simulation, where the magnetic field is initialised as an anemone structure tied to the photosphere. Alfvén waves are driven at the photosphere and allowed to move up into the anemone structure. The inhomogeneity of the magnetic field leads to efficient linear conversion of the Alfvén waves into upwardly fast magnetoacoustic waves accompanied by density fluctuations. Parametric studies of the effect were undertaken.

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